Tompkins Cortland Community College

Master Course Syllabus

Course Discipline and Number: CIS 220 **Year: 2022-2023**
Course Title: Database Concepts **Credit Hours: 3**

Attendance Policy: *To maintain good grades, regular attendance in class is necessary. Absence from class is considered a serious matter and absence never excuses a student from class work. It is the responsibility of all instructors to distribute reasonable attendance policies in writing during the first week of class. Students are required to comply with the attendance policy set by each of their instructors. Students are not penalized if they are unable to attend classes or participate in exams on particular days because of religious beliefs, in accordance with Chapter 161, Section 224-a of the Education Law of the State of New York. Students who plan to be absent from classroom activity for religious reasons should discuss the absence in advance with their instructors. See college catalog for more information.*

Services for Students with Disabilities: *It is the College's policy to provide, on an individual basis, appropriate academic adjustments for students with disabilities, which may affect their ability to fully participate in program or course activities or to meet course requirements. Students with disabilities should contact the Coordinator of Access and Equity Services, to discuss their particular need for accommodations. All course materials are available in alternate formats upon request.*

Course Description

Design and implementation of databases using common DBMS packages. The role of databases in business is discussed, with an emphasis on databases in microcomputers, database design, including definition of requirements, data modeling, normalization techniques, and implementation. Prerequisites: CAPS 131; CIS 108 or CSCI 160; MATH 095 and RDNG 099 if required by placement testing; ENGL 099 or prior completion or concurrent enrollment in ESL 120, 121, and 122 (**or** prior completion of ESL 103) if required by placement testing. 3 Cr. (3 Lec.) Fall semester.

Course Context/Audience

This is a required course for Computer Information Systems and Computer Science majors. Students interested in developing database design skills who have the appropriate prerequisites may also take this class as an elective.

Basic Skills/Entry Level Expectations

Writing:	W2	ENGL 099 or prior completion or concurrent enrollment in ESL 120, 121 and 122 if required by placement testing
Math:	M4	MATH 095 if required by placement testing
Reading:	R2	RDNG 099 if required by placement testing;

Course Goals

This course has four primary goals:

1. To introduce the student to the history and theory of database management systems.
2. To introduce the student to formal database design techniques.
3. To provide the student with practical, hands-on experience designing and building a real database application for a small organization.
4. To give the student experience working on a project team to develop and present a final product.

Course Objectives/Topics

Objective/Topic	# Hours
The student will be able to discuss the history of database models used in the industry.	3 Hours
The student will be able to describe the relational database model and its advantages over other models.	3 Hours
The student will be able to use basic UML (Unified Modeling Language) syntax to build a class diagram for a given database project.	9 Hours

The student will be able to apply the normalization process to a given set of relational database tables.	6 Hours
The student will be able to use SQL to extract information from single and multiple tables in a relational database.	9 Hours
The student will participate in a project team to build a small database from design to implementation.	15 Hours

General Education Goals - Critical Thinking & Social/Global Awareness

CRITICAL THINKING OUTCOMES	**HOW DOES THE COURSE ADDRESS THE OUTCOMES** (Include required or recommended instructional resources, strategies, learning activities, assignments, etc., that must or could be used to address the goal/outcomes)
Students will be able to ➢ develop meaningful questions to address problems or issues.	Students will discuss current issues in database design and architecture. Group discussion and research projects will allow students to develop the ability to solve problems effectively and creatively. Through demonstrations, the students will be presented with models of database design followed by individual and team based lab exercises.
➢ gather, interpret, and evaluate relevant sources of information.	Students will research common business models as an initial step for final project development. Demonstrations and case studies will be utilized. Students will be shown development techniques from start to finish.
➢ reach informed conclusions and solutions.	Students will have working models of completed solutions to refer to during project development.
➢ consider analytically the viewpoints of self and others.	Students will compare various opinions. They will have to analyze information and make recommendations based on the results. Students will be encouraged to express ideas in class lectures. Group projects and oral presentations should be required.
SOCIAL/GLOBAL AWARENESS OUTCOMES	**HOW DOES THE COURSE ADDRESS THE OUTCOMES** (Include required or recommended instructional resources, strategies, learning activities, assignments, etc., that must or could be used to address the goal/outcomes)
➢ Students will begin to understand how their lives are shaped by the complex world in which they live.	Students will compare various opinions. They will have to analyze information and make recommendations based on the results.
➢ Students will understand that their actions have social, economic and environmental consequences.	Students will be presented with the concept of creating solutions to maximize efficiency of various common business tasks. Discussions of common business tasks and how software can contribute to streamlined functionality should be included. Group projects and oral presentations should be required.

Instructional Methods
Some of the course content can be delivered in a lecture/discussion format. Students learn the design and normalization process best by working through problems on their own, then discussing the solutions in class. A group project that builds a database for a "real" client is most appropriate for assessing student progress.

Revised 03-17/T. Smith

Methods of Assessment/Evaluation

Method	% Course Grade
Exams	50%
Group project and presentation	30%
Individual homework assignments	20%

Text(s)

Database Management Systems, Post, Gerald, Latest Edition, © 2002 McGraw-Hill

Bibliography

Peter Rob and Carlos Coronel, Database Systems, 7th edition, © 2006: Course Technology.

Harrington, Jan L., Relational Database Design Clearly Explained, 2nd edition, © 2002: Morgan Kaufmann.

Powell, Gavin, Beginning Database Design, © 2005: Wrox.

Other Learning Resources

Audiovisual No resources specified
Electronic No resources specified
Other No resources specified